

Name: _____

Date: _____

Algebra and Functions 1.1

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Which expression represents *the product of a number and 6 subtracted from 50*? **1** _____
- A** $6x - 50$
B $6(x - 50)$
C $50 - 6x$
D $6(50 - x)$
- 2** If you divide 4 more than twice a number by 0.1, the result is 3.4. Which equation represents this information? **2** _____
- F** $2n + \frac{4}{0.1} = 3.4$
G $\frac{2n + 4}{0.1} = 3.4$
H $\frac{2n}{0.1} + 4 = 3.4$
J $\frac{2n}{0.1} = 3.4$
- 3** Which inequality represents *twice a number is at most 35*? **3** _____
- A** $2x > 35$
B $2x < 35$
C $2x \geq 35$
D $2x \leq 35$
- 4** The original price of a pair of pants was p dollars. The pants are on sale for \$5 off the original price. Which of the following represents what you would pay if you buy two pairs of pants at the sale price? **4** _____
- F** $(p - 5) + (p - 5)$
G $p - 2 \cdot 5$
H $2 \cdot p - 5$
J $(p - 5) + (5 - p)$
- 5** A number n is at least 6 but no more than 10. Which of the following describes this situation? **5** _____
- A** $6 < n$ and $n < 10$
B $6 \leq n$ and $n \leq 10$
C $6 \leq n$ and $n > 10$
D $6 \leq n$ and $n \geq 10$

Algebra and Functions 1.2

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Evaluate $45 - 3x$ if $x = 9$. 1 _____
- A 18
B 28
C 368
D 378
- 2 What is the value of $6x + 3 - 4x \div 2$ if $x = 5$? 2 _____
- F $6\frac{1}{2}$
G 7
H 23
J 31
- 3 What is the value of $c^2 + 7c - 2$ if $c = 3$? 3 _____
- A 25
B 28
C 46
D 48
- 4 What is the value of $\frac{x^2 - 5x}{x^2 - 3x}$ if $x = 4$? 4 _____
- F -4
G -1
H 1
J 4
- 5 Evaluate $a + b^2$ if $a = 5$ and $b = 7$. 5 _____
- A 19
B 24
C 54
D 144

Algebra and Functions 2.1

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Which expression is equivalent to $(a^3)^{-4}$? 1 _____
- A a^{-1}
- B $\frac{1}{a^3 \cdot a^3 \cdot a^3 \cdot a^3}$
- C $\frac{1}{a^4}$
- D $\frac{1}{a^3}$
- 2 What is the simplified form of $(3x^4y^3)^3$? 2 _____
- F $3x^7y^6$
- G $3x^{12}y^9$
- H $27x^7y^6$
- J $27x^{12}y^9$
- 3 Evaluate $\frac{x^{-5}}{x^2}$ when $x = 1$. 3 _____
- A $\frac{1}{7}$
- B $\frac{1}{5}$
- C $\frac{1}{3}$
- D 1
- 4 Which expression is equivalent to $(a^{-4}b^2c^{-1})^{-3}$? 4 _____
- F $a^{-7}b^{-1}c^{-4}$
- G $\frac{a^{12}c^3}{b^6}$
- H $a^{12}b^6c^3$
- J $\frac{a^{12}c^3}{b^{-6}}$
- 5 What is the value of $\frac{4^{-3}}{4^{-5}}$? 5 _____
- A 16
- B 4
- C $\frac{1}{16}$
- D $\frac{1}{65,536}$

Algebra and Functions 2.2

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

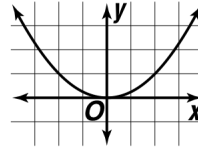
- 1 Which expression is equivalent to $(4x^6y^8)(-3xy^5)$? 1 _____
A $-12x^6y^{40}$
B $12x^7y^{13}$
C $-12x^7y^{13}$
D $-12x^5y^3$
- 2 Which expression is equivalent to $\frac{12a^2b^3c^4}{27ab^5c^3}$? 2 _____
F $\frac{3}{7}abc$
G $\frac{4}{9}a^3b^8c^7$
H $\frac{4}{9}a^2b^{15}c^{12}$
J $\frac{4ac}{9b^2}$
- 3 Which expression is equivalent to $(-5x^4y^3)^3$? 3 _____
A $-125x^{12}y^9$
B $-5x^{12}y^3$
C $-125x^7y^6$
D $125x^{12}y^3$
- 4 If a and b are positive, which expression is equivalent to $\sqrt{100a^3b^2}$? 4 _____
F $10ab$
G $10ab\sqrt{a}$
H $10a^2b$
J $10ab\sqrt{ab}$
- 5 Which expression is equivalent to $(2m^2n^3)(4mn)^2$? 5 _____
A $16m^2n^2$
B $16m^4n^6$
C $32m^4n^5$
D $32m^4n^6$

Algebra and Functions 3.1

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 Which equation represents the function graphed?

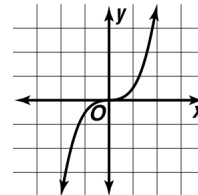
- A $y = \frac{1}{4}x^2$
- B $y = x^2$
- C $y = \frac{1}{2}x^2$
- D $y = 2x^2$



1 _____

2 Which equation represents the function graphed?

- F $y = x^3$
- G $y = \frac{1}{2}x^3$
- H $y = -\frac{1}{2}x^3$
- J $y = -x^3$



2 _____

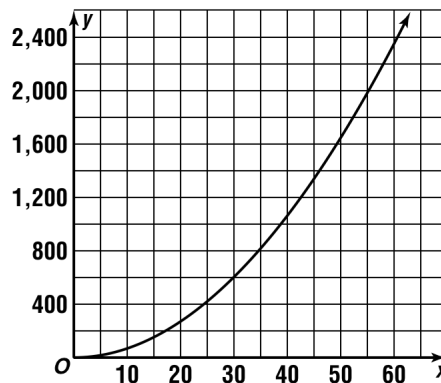
3 At which points do the graphs of $y = x^2$ and $y = x^3$ intersect?

- A (0, 0) and (-1, -1)
- B (0, 0) and (-1, 1)
- C (0, 0) and (1, -1)
- D (0, 0) and (1, 1)

3 _____

4 The formula $y = 0.66x^2$ represents the number of miles x that can be seen when flying at a height of y feet. Use the graph to determine the approximate number of miles that can be seen at a height of 2,000 feet.

- F about 60 miles
- G about 55 miles
- H about 50 miles
- J about 45 miles



4 _____

Algebra and Functions 3.4

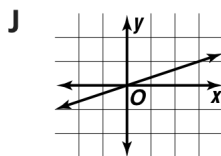
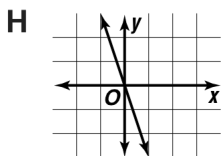
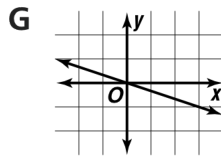
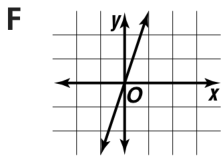
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 A flight from Chicago to Los Angeles maintains an average speed of 345 mi/h. If t represents the number of hours in flight and d represents distance traveled, which two points (t, d) could you use to graph $d = rt$? 1 _____
- A (345, 1) and (0, 0)
B (1, 345) and (2, 690)
C (345, 1) and (690, 2)
D (1, 345) and (2, 345)

- 2 Which equation can be used to convert miles to feet? 2 _____
- F $f = 5,280 + m$
G $f = \frac{m}{5,280}$
H $f = 5,280m$
J $f = 5,280 - m$

- 3 What point must be on the graph of $y = kx$? 3 _____
- A (1, 1)
B (0, 1)
C (0, 0)
D (1, 0)

- 4 You can use the equation $y = \frac{1}{3}x$ to find the number of yards in x feet. 4 _____
Which of the following is the graph of this equation?



Algebra and Functions 4.1

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 What is the solution of $4x + 7 = 43$? 1 _____
- A 8
B 9
C 12.5
D 36
- 2 Solve $\frac{3a}{6} \leq -10$. 2 _____
- F $a \leq -20$
G $a \geq 20$
H $a \leq 20$
J $a \geq -20$
- 3 Three charities will get equal shares of the profits from a school carnival. The profit from admission tickets is \$400, from refreshments, \$700, and \$850 from game tickets. How much will each charity get? 3 _____
- A \$1,950
B \$650
C \$516.67
D \$366.67
- 4 Suppose you want to add 18 to a number to get a sum that is greater than or equal to 8. What is the smallest number you can use? 4 _____
- F -18
G -10
H -8
J 8
- 5 What inequality describes the solutions of $-15 < n + 15$? 5 _____
- A $n > 0$
B $n < -30$
C $n > 30$
D $n > -30$

Algebra and Functions 4.2

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 If y varies directly as x and $y = 98$ when $x = 14$, what is y when $x = 11$? **1** _____
- A** 1,078
B 154
C 84
D 77
- 2 On the model of an airplane, 4 feet corresponds to 80 feet on the actual plane. What is the wingspan on the model if the plane's wingspan is 45 feet? **2** _____
- F** 1.8 ft
G 2.25 ft
H 20 ft
J 35 ft
- 3 Karen jogs at a rate of 4.5 miles per hour. How far does she jog in 12 minutes? **3** _____
- A** 0.9 mi
B 1 mi
C 1.125 mi
D 9 mi
- 4 The ratio of students to teachers is 18 to 1 at The Pulaski School. There are 792 students at the school. How many teachers are there? **4** _____
- F** 54 teachers
G 44 teachers
H 34 teachers
J 18 teachers
- 5 Blake is a geologist studying coastal rivers in southern California. She found that silt was deposited in a riverbed at the rate of 4 inches every 500 years. How many years would it take to deposit 5 inches of silt? **5** _____
- A** 400 years
B 550 years
C 625 years
D 800 years

Answers

AF 1.1

1. C
2. G
3. D
4. F
5. B

AF 1.2

1. A
2. H
3. B
4. G
5. C

AF 2.1

1. B
2. J
3. D
4. G
5. A

AF 2.2

1. C
2. J
3. A
4. G
5. C

AF 3.1

1. A
2. G
3. D
4. G

AF 3.4

1. B
2. H
3. C
4. J

AF 4.1

1. B
2. F
3. B
4. G
5. D

AF 4.2

1. D
2. G
3. A
4. G
5. C